

Impact of Clinical Pharmacists on Antimicrobial Stewardship at Providence Health Care

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Background

- Antimicrobial stewardship can optimize antibiotic use, reduce risk of infections, stabilize or reduce antibiotic resistance, promote patient safety and reduce health care costs
- Hospital pharmacists have the abilities and opportunities to improve the utilization of antibiotics

Primary Objective:

To quantify the antimicrobial stewardship activities occurring with target antibiotics by pharmacists at St. Paul's Hospital (SPH) and Mount St. Joseph's Hospital (MSJ)

Methods

Design: Qualitative retrospective review of pharmacists' documented activities of antimicrobial stewardship

Inclusion criteria: Patients at SPH or MSJ who received one of the "target antibiotics" for greater than 24 hours

Exclusion criteria: Patients from the Emergency Department, operating rooms, psychiatry wards or any ambulatory clinics

Selection of patients: A stratified random selection of patients based on ward and target antibiotic

Data collection: After the patients were discharged, the Pharmacy Patient Monitoring Forms (PMF) and health records were reviewed (October 1, 2012 to March 31, 2013)

1° Outcome: The proportion of included patients who experienced at least one antimicrobial stewardship intervention performed by a pharmacist

2° Outcomes:

- Frequency of each type of intervention
- Frequency of interventions involving each antibiotic
- Proportion of patients with more than one intervention where there was documentation with:
 - A chart note (progress note)
 - Prescription

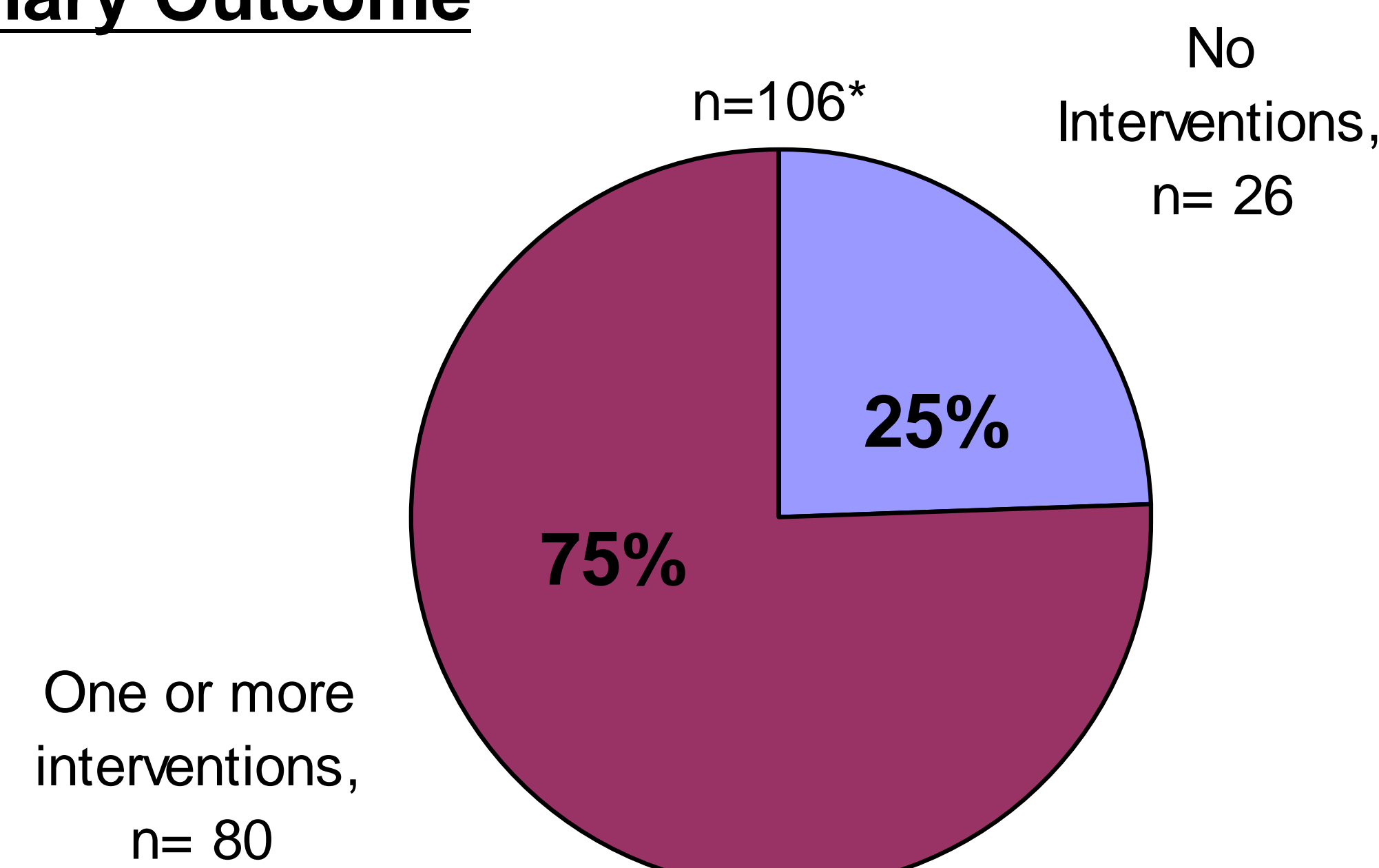
Table 1: Pharmacist's interventions with target antibiotics

- Initiated the antibiotic
- Discontinued the antibiotic
- Continuation of a target antibiotic when prescribed regimen duration ended
- Increased the dosage
- Decreased the dosage
- Obtained approved prescriber
- Clarified order
- Requested for drug level
- Assessment of dosing based on serum drug measurement
- Assessment of dosing based on pharmacokinetic principles
- Narrowed spectrum of activity of target antibiotic
- IV-PO step down
- Patient counseling on the indication, toxicity, efficacy or administration of target antibiotic
- Coordination of continuity of care

	Total n=
1. Ceftazidime IV	10
2. Ceftriaxone IV	10
3. Gentamicin IV	10
4. Imipenem IV	10
5. Linezolid PO	9
6. Linezolid IV	10
7. Meropenem IV	10
8. Piperacillin/Tazobactam IV	10
9. Tobramycin IV	7
10. Vancomycin PO	10
11. Vancomycin IV	10

Figure 1: Proportion of patients with one or more intervention

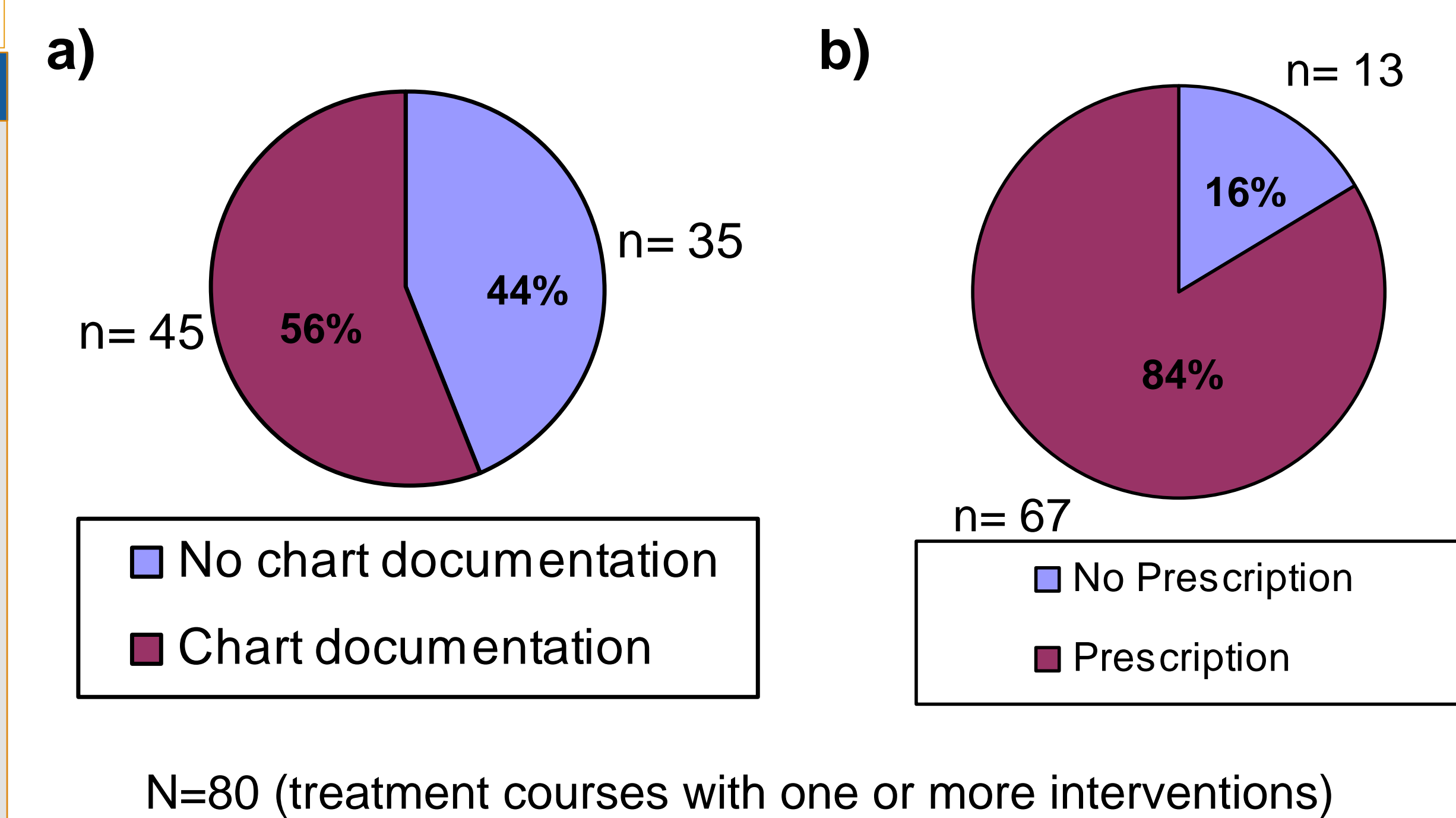
Primary Outcome



* SPH treatment courses with one or more intervention n= 62/82
MSJ treatment courses with one or more intervention n=18/24

Figure 2: Proportion of patients with an intervention where there was documentation with a) Chart note (left) b) Prescription (right)

Secondary Outcomes



Results

Figure 3: Frequency of each type of intervention

Secondary Outcomes

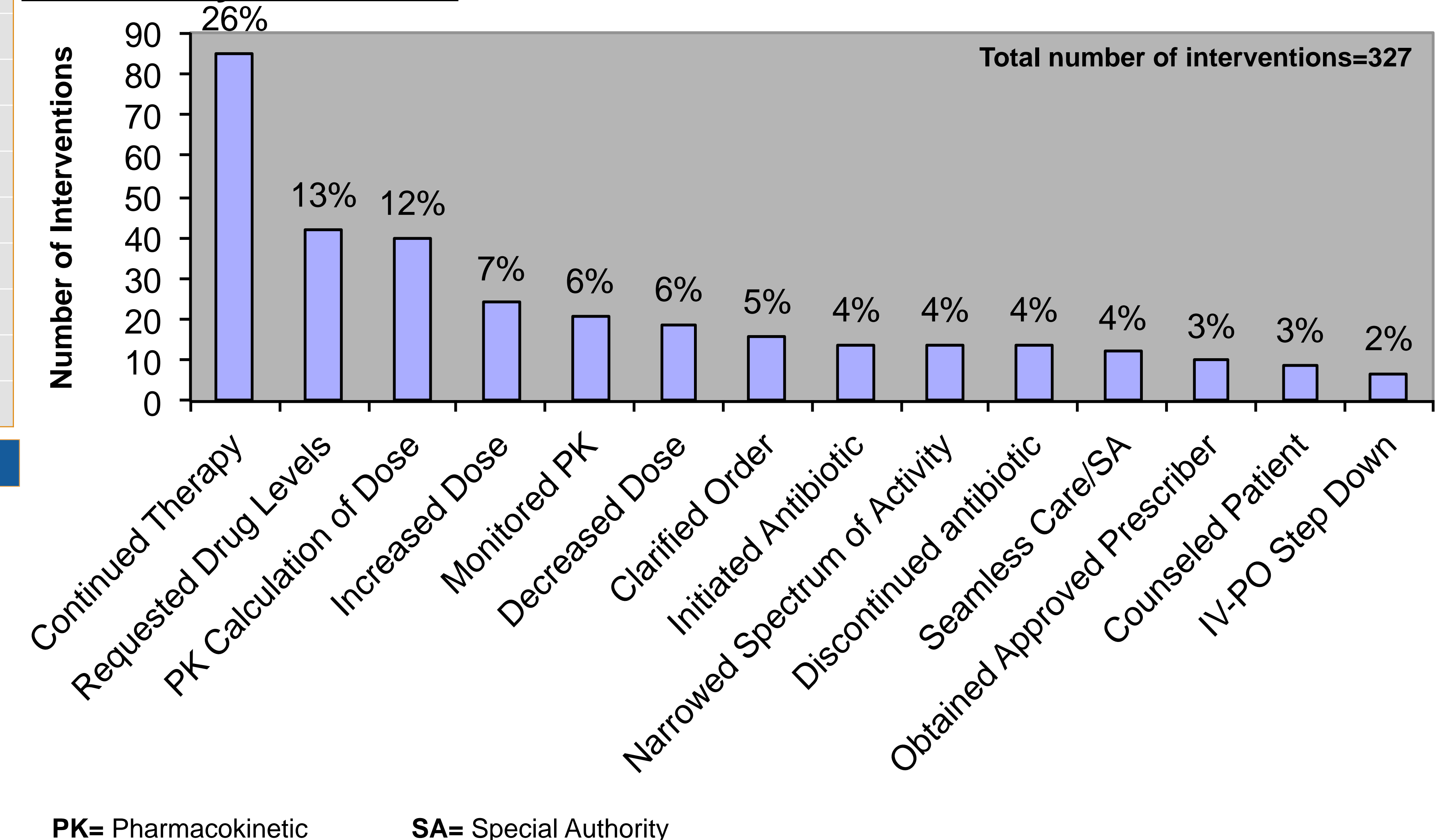
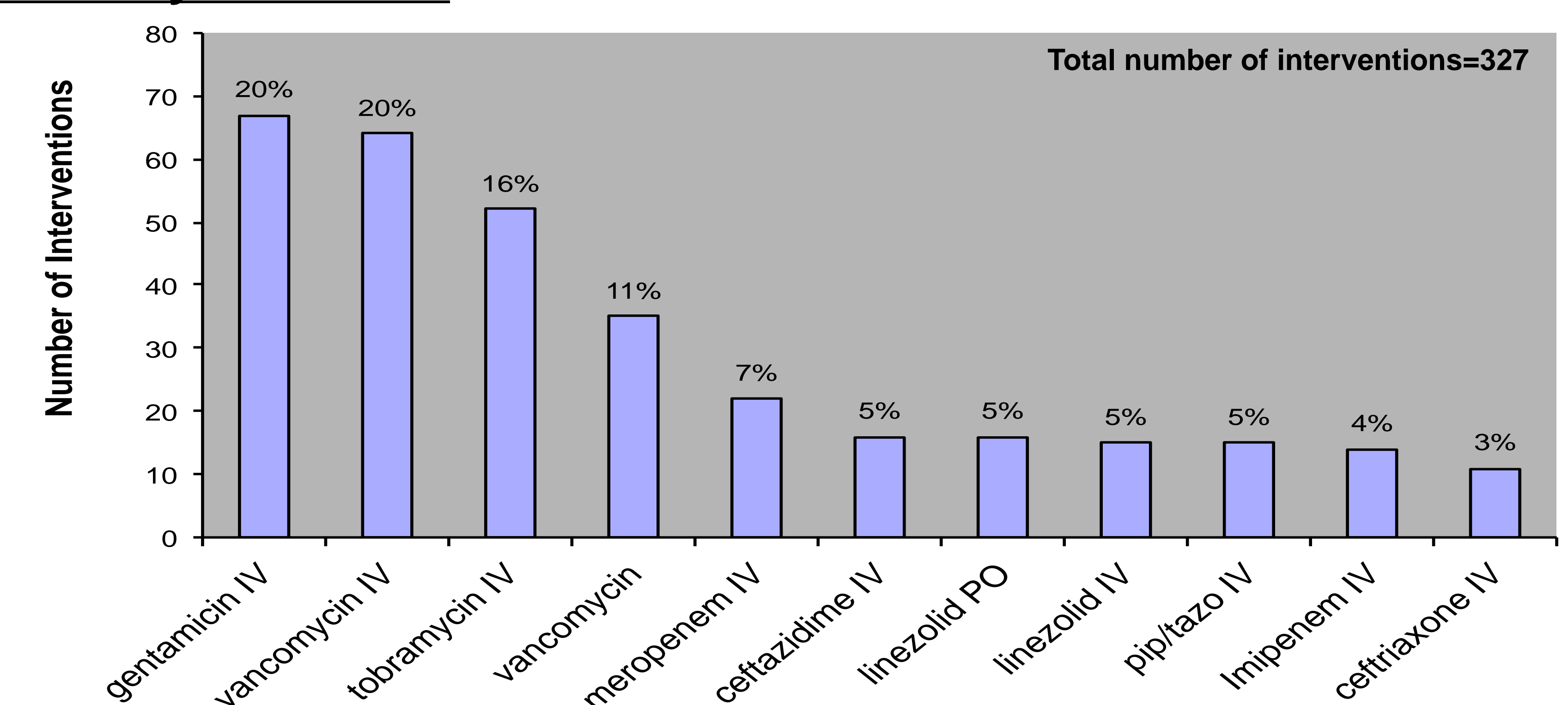


Figure 4: Frequency of interventions involving each antibiotic

Secondary Outcomes



Conclusions

- PHC pharmacists are frequently (~75% of target antibiotic regimens) involved in antimicrobial stewardship activities
- Primary antibiotics of intervention are vancomycin, gentamicin, and tobramycin
- Primary activities are therapy continuation, and pharmacokinetic dosage optimization
- There appears to be an opportunity to increase the number of interventions related to narrowing therapy and counseling patients.

